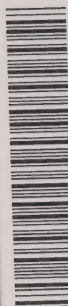


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Ontario

**Ministry of
Energy**

ENERGY IN ONTARIO

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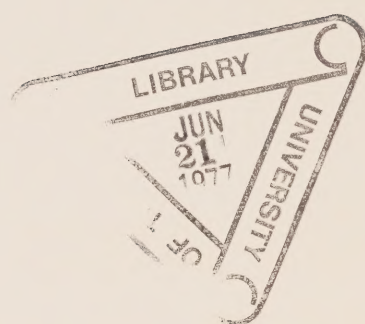


TABLE OF CONTENTS

	<u>Page</u>
FOREWORD	iii
HIGHLIGHTS	1
PRIMARY ENERGY CONSUMPTION	2
OIL	7
NATURAL GAS	20
PROPANE	27
PIPELINES	30
COAL	34
ELECTRICITY	37

TABLES

1. Primary Energy Consumption Annual Percent Increases	5
2. Oil Balance 1974	11
3. Canadian Oil Requirements 1974	12
4. Sources of Refined Products 1974	15
5. Net Sales of Petroleum Products 1974	16
6. Refining Capacity 1974	19
7. Natural Gas Balance 1974	24
8. Natural Gas Sales, by Category 1974	26
9. Propane Receipts and Disposition 1974	28
10. Pipeline Mileage 1974	32
11. Coal Balance 1974	35
12. Electric Energy Balance 1974	41

TABLE OF CONTENTS

Page	
iii	FOREWORD
1	HIGHLIGHTS
2	PRIMARY ENERGY CONSUMPTION
7	OIL
20	NATURAL GAS
27	BROWN
30	PIPELINE
34	COAL
37	ELECTRICITY
	TABLES
5	1. Sources of Balance Producers 1974
10	2. Net Sales of Petroleum Products 1974
15	3. Refining Capacity 1974
24	4. Natural Gas Balance 1974
26	5. Natural Gas Sales, by Category 1974
28	6. Propane Receipts and Distribution 1974
32	7. Pipeline Imports 1974
35	8. Coal Balance 1974
41	9. Electric Energy Balance 1974

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FIGURES

1. Primary Energy Consumption by Source, in Percentages, 1960 and 1974	4
2. Primary Energy Consumption by Type, BTUs, 1960-1974	6
3. Primary Energy Consumption by Type, Percentages, 1960-1974	6
4. Oil Supply & Disposition, 1960-1974 . . .	13
5. Gas Supply & Disposition, 1960-1974 . . .	25
6. Propane Supply & Disposition, 1960-1974 .	29
7. Pipeline Mileage, 1960-1974	33
8. Coal Supply & Disposition, 1960-1974 . .	36
9. Electricity Supply & Disposition, 1960-1974	42

FOREWORD

The 1974 version of "Energy in Ontario" contains more data than previous issues and, on this occasion, 15-year supply-disposition charts for each type of energy. These changes result from requests by users of this publication and of the quarterly "Oil & Gas Statistics".

The objective of both publications is to provide periodic information on Provincial energy statistics and related developments in summary form.

ONTARIO ENERGY HIGHLIGHTS 1974

The significant development in Ontario's energy situation was the forecast shortfall in Canada's native resources of oil and natural gas expected within the next few years.

Of importance also was the quadrupling in price of off-shore crude oil by the beginning of 1974 accompanied by a lifting of the embargo by Middle East countries supplying eastern Canada. A corresponding drop in western Canada oil shipments to Montreal and the Atlantic provinces followed.

The rate of increase in consumption of total energy eased. Oil maintained its position as the dominant energy source. Electricity rose at a lower rate in 1974. Thermal generation used more coal and less uranium than in 1973.

Oil supplies from western Canada and the output of refineries increased. Imports of crude oil and native Ontario production both were lower.

Natural gas supplies from western Canada increased but at a lower rate. Withdrawals from storage reservoirs rose and injections decreased. Production from Ontario gas wells declined.

Coal consumption decreased along with imports. Imported coal continued as a major fuel for thermal generation of electricity and for steel manufacturing. Additional future supplies are being sought from western Canada's extensive coal reserves.

PRIMARY ENERGY CONSUMPTION IN ONTARIO 1974

Total primary energy used in 1974 was $2,805 \times 10^{12}$ BTUs (British Thermal Units), an increase of nearly 3 percent from 1973. This rate of increase was lower than that of 1973 and 1972. Total consumption in 1974 was more than twice that in 1960. The 15-year period from 1960 is shown in Figure 2. Particularly noteworthy are the shifts in market shares for natural gas and nuclear energy. The relative shares of fuels are also shown in pie chart format in Figure 1 for the two years 1960 and 1974.

Oil continues to supply the largest part of Ontario's energy requirements. Over the survey period, oil consumption has grown steadily but its share of total energy consumption has declined from 45 percent in 1960 to just over 40 percent in 1974.

Natural gas consumption showed the largest percentage increase. Following completion of the TCPL pipe line into Ontario in 1958, natural gas consumption has grown rapidly and by 1974 natural gas had increased its share of total energy consumption to 24.5 percent.

Consumption of coal decreased in 1974 and its share of total energy consumption declined to under 13 percent. About half of the coal consumed was used for thermal generation of electricity.

Electricity consumption increased in 1974 but at a lower rate than in 1973. Hydraulic electricity has accounted for an increasingly smaller proportion of the electricity produced with an increased contribution from thermal generation.

PRIMARY ENERGY CONSUMPTION BY SOURCE

AS PERCENT OF TOTAL CONSUMPTION

IN ONTARIO

Figure 1

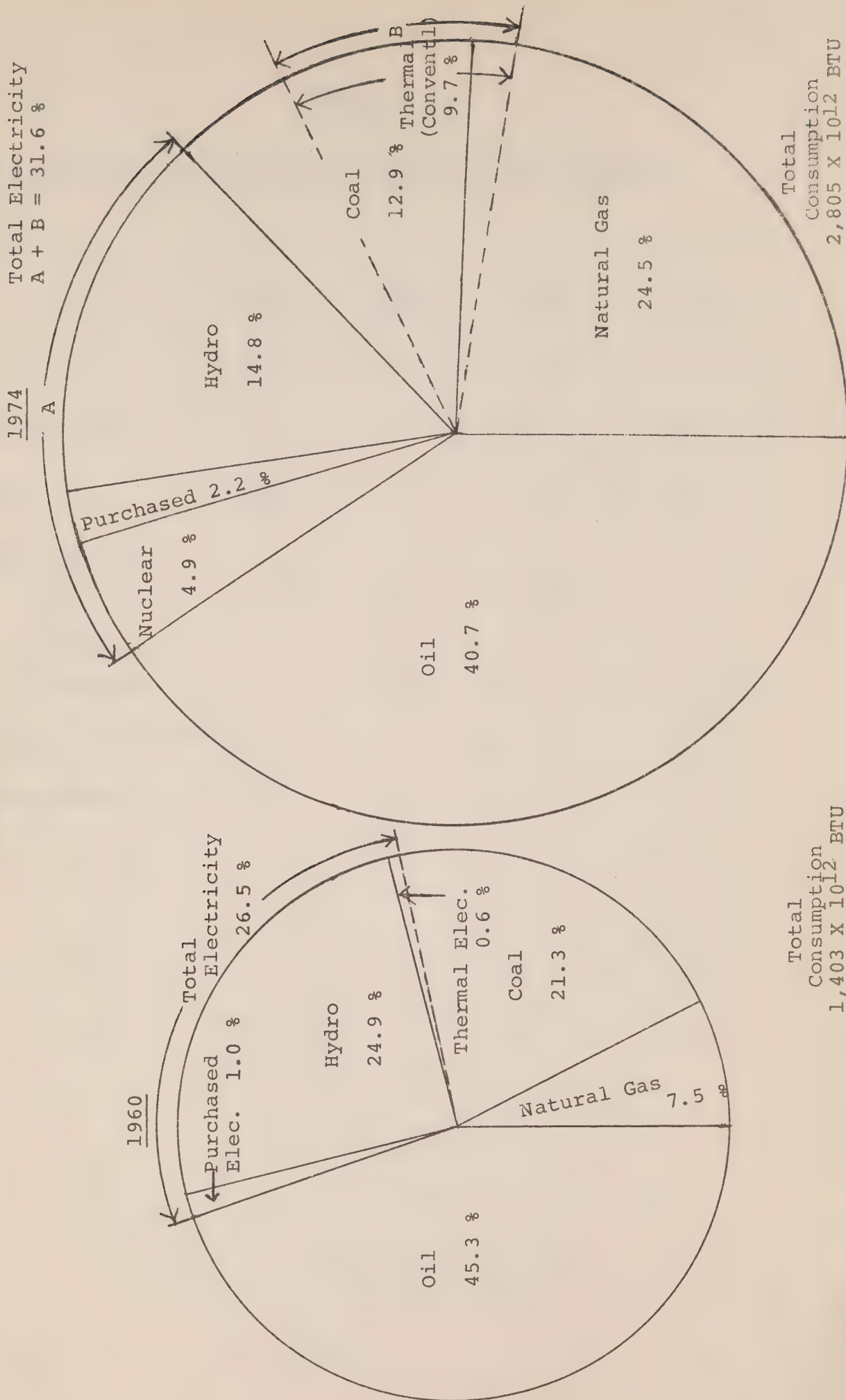


TABLE 1

Ontario Energy Consumption Annual Percent Increases

	<u>1974</u>	<u>1973</u>	<u>1972</u>	<u>1971</u>
Oil	2.8	3.9	3.6	1.0
Natural Gas	11.3	3.7	20.3	12.3
Coal	-11.2	-8.7	1.3	-7.7
Electricity:				
Hydro	1.4	-1.1	8.3	-2.5
Nuclear	-2.8	130.0	57.1	300.0
Purchases	44.7	4.9	-6.0	-23.4
Total Electricity	5.1	6.2	8.4	4.7
TOTAL ENERGY	2.7	4.0	8.0	1.4

PRIMARY ENERGY CONSUMPTION IN ONTARIO 1960-1974

ENERGY SOURCE	1960	1965	1970	1971	1972	1973	1974
Oil	636	824	1,024	1,034	1,071	1,112	1,143
Natural Gas	106	244	440 ¹	495	595	617	687
Coal ¹	298	403	476	439	445	407	361
Hydro Electricity ²	350	331	391	381	413	408	414
Nuclear Electricity	-	-	10	39	61	143	139
Purchased Elect.	13	44	56	43	41	42	61
TOTAL	1,403	1,846	2,397	2,431	2,626	2,729	2,805

Figure 3

[illegible]

Oil: 5.8×10^6 BTU/barrel
Natural Gas: 1.0×10^6 BTU/thousand cubic feet
Coal: 26.2×10^6 BTU/short ton

1. Includes use in thermal generation of electricity; natural gas from 1970.
2. Hydraulic generation.

Note: The conversion factor adopted for all electricity is the equivalent thermal energy assuming efficiency of conversion is that of a coal-burning plant.

OIL IN ONTARIO

General

In 1974, oil consumption in Ontario increased to 197 million barrels, about 3 percent more than in 1973. Oil continues to supply around 40 percent of Ontario's primary energy consumption and Ontario's oil consumption represents about 30 percent of total Canadian consumption.

There was a 20 percent increase in refinery capacity with a 10 percent increase in refinery output. Imports and transfers of oil products from other provinces decreased while product exports rose. Ontario production of crude oil, already a minor proportion of provincial requirements, decreased further. Crude oil costs and petroleum product prices increased.

During the year, the National Energy Board issued a report "In the Matter of the Exportation of Oil", which stated that by the 1980's there may not be sufficient availability of Canadian indigenous crude oil to meet domestic requirements. Consequently, that Board is to continue an ongoing appraisal through public hearings to match supply with demand and report periodically upon significant changes in this situation. As most of the oil consumed in Ontario is refined from Canadian crude oil, this is of considerable interest to the Province.

The National Energy Board held hearings into an application by Interprovincial Pipe Line Limited to extend its oil

pipe line from western Canada a further 520 miles from Sarnia to Montreal to deliver 250 thousand barrels per day to that market area. Deliveries are planned to commence by the 1976-1977 winter heating season.

Crude Oil

Receipts of crude oil from western Canada increased over 12 percent in 1974 to almost 475,000 barrels a day (bpd). Part of this increase is accounted for by the transshipment via the seaway of western Canadian crude oil to Quebec. These movements represented about 4 percent of the total crude oil supply to Ontario. As the year progressed, with the lifting of the Arab oil embargo, the volume of these movements declined.

Receipts from Alberta increased by nearly 20 percent and continued to account for over 80 percent of Ontario's supplies. Receipts from Saskatchewan declined 15 percent and represented only 15 percent of total supply as compared with 20 percent in 1973. Receipts from Manitoba account for a further 1 percent of supply.

Imports of foreign crude oil decreased further. Only 68,000 barrels were imported, all from Venezuela.

Production from Ontario crude oil wells, which supplies less than one-half percent of total requirements, declined further, with receipts decreasing by over 9 percent from 1973.

Over 450,000 bpd of crude oil were run to stills in Ontario; an increase of 10 percent over 1973.

The delivered cost of Canadian crude oil to Ontario increased on two occasions during 1974. The major change was the increase in the average Alberta wellhead price from

\$3.80/barrel to \$6.50/barrel which became effective April 1, 1974. Subsequently on September 1st, Interprovincial PipeLine raised its transportation charges to Ontario points by 4 cents a barrel.

Table 2

Ontario Oil Balance 1974 (1)

		Quantities in Thousands of <u>Barrels</u>	<u>Percent</u> <u>of Total</u>	<u>Change over</u> <u>1973</u>
<u>Supply</u>				
Crude Oil	- Ontario Production	734	0.4	-9.2
(2)	- From Western Provinces	173,361	83.2	12.7
	- Imports from Venezuela	68	-0-	-86.3
	- Transfers to Quebec	-8,476	-4.1	71.8
	- Net Transfers and other Materials	-340	-0.1	-0-
	- Total Run to Stills	165,347	79.4	10.0
Products	- Transfers from Other Provinces	32,044	15.4	-19.4
	- Imports	4,333	2.1	-21.4
	- Other Receipts	6,540	3.1	-2.9
	- Total Product Receipts	42,917	20.6	-17.6
<u>Total Supply</u>		208,264	100.0	2.9
<u>Disposition of Products</u>				
Consumption	- Customer Sales	186,643	89.6	2.7
	- Company Use	10,375	5.0	3.1
	- Total Consumption	197,018	94.6	2.7
Other	- Transfers to Other Provinces	3,435	1.6	-27.9
	- Exports	7,067	3.4	51.8
	- Product Inventory Changes	407	0.2	-0-
	- Losses	337	0.2	-0-
	Total Other Disposition	11,246	5.4	6.6
<u>Total Disposition</u>		208,264	100.0	2.9

(1) Based on Statistics Canada Monthly Report No. 45-004.

(2) Crude Oil, condensate and pentanes plus, comingled propane and butane mixes.

Table 3

Canadian Oil Requirements in Percent of Total for 1974

	<u>Ontario</u>	<u>Prairies & N.W.T.</u>	<u>Quebec & Maritimes</u>	<u>B.C.</u>	<u>Total</u>
Crude Receipts					
Canadian	26.7	16.4	4.4	8.4	55.9
Imported	-	-	48.3	-	48.3
Total	26.7	16.4	52.7	8.4	104.2
Net Product Exports	0.4	0.2	2.2	-0.5	2.3
Provincial Transfers (1)	3.7	-1.4	-11.0	2.2	-6.5
Total Consumption	30.8	15.2	43.9	10.1	100.0

(1) Product Transfers between provinces plus other materials to stills plus inventory changes.

Source: Oilweek

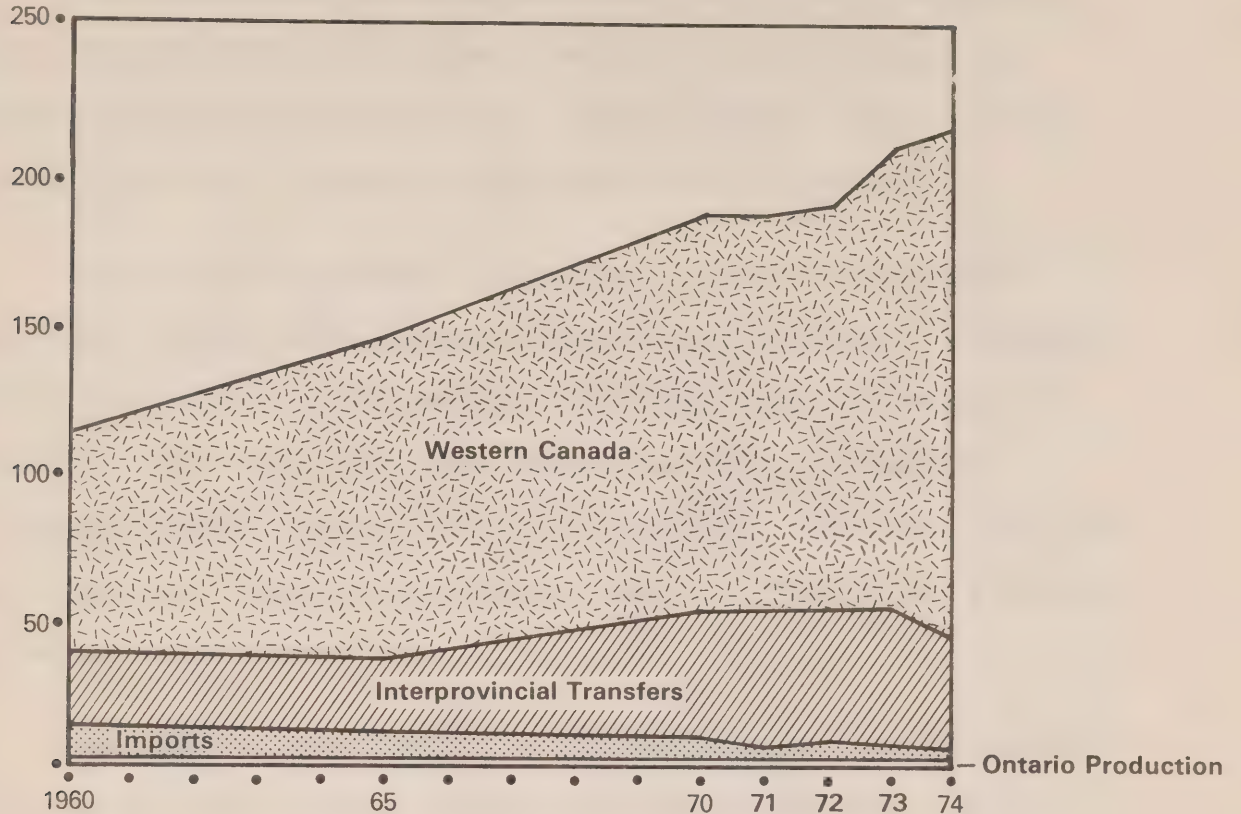
OIL IN ONTARIO

Figure 4

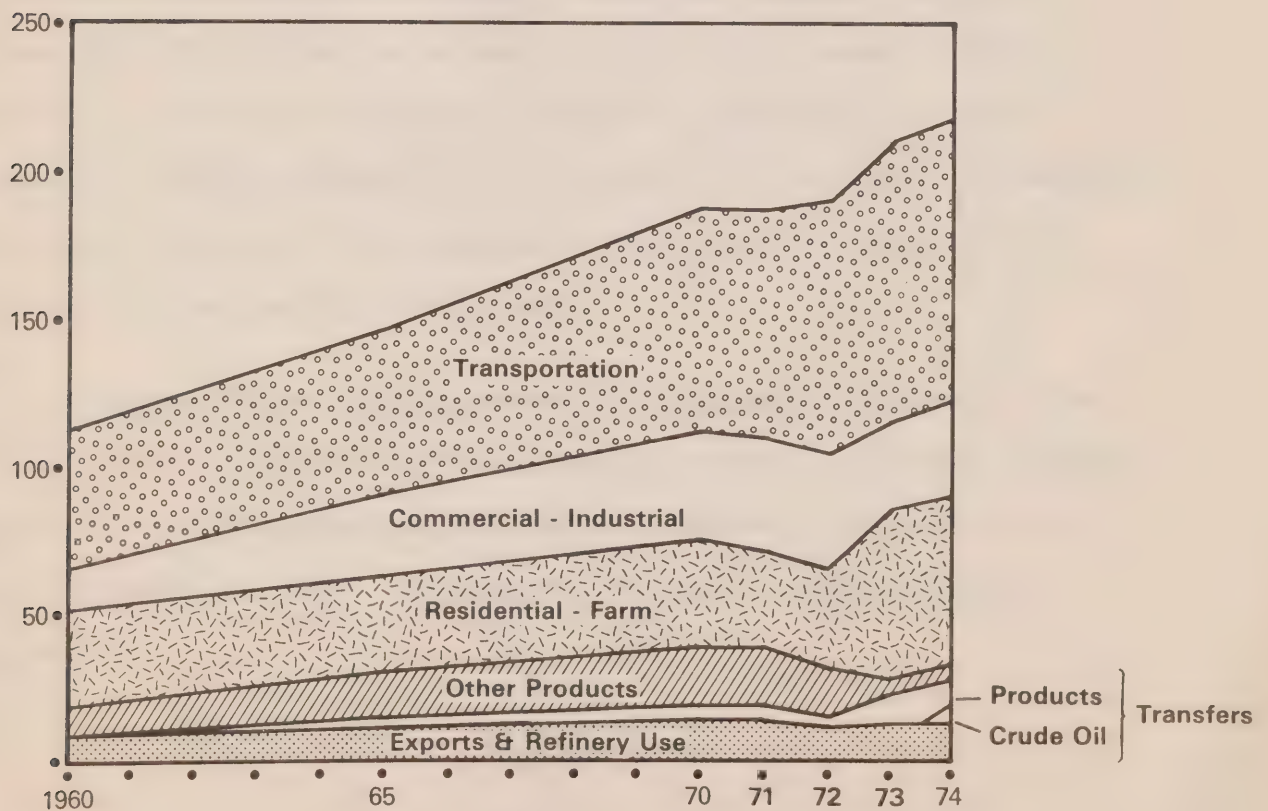
Source: Statistics Canada No. 45-004, 57-207 & 57-505

Millions
of Barrels

SUPPLY



DISPOSITION



Refined Petroleum Products

Consumption of refined petroleum products in Ontario in 1974, increased by less than 3 percent on 1973 levels, to around 540,000 barrels per day. This rate of increase was lower than the 4 percent experienced in 1973 over 1972.

Three major products accounted for about 75 percent of total product consumption - motor gasoline over 38 percent, light fuel oil over 19 percent and heavy fuel oil about 16 percent. Of these products, motor gasoline consumption increased some 2 percent over 1973 levels, light fuel oil was up less than 1 percent and heavy fuel oil registered a decline of about 2 percent.

Production from Ontario's oil refineries rose 10 percent to over 450,000 barrels per day and was equivalent to about 84 percent of total provincial consumption. The balance of Ontario's consumption is mainly supplied through product transfers from other provinces, principally Quebec. With regard to the major products, Ontario production of motor gasoline was equivalent to 90 percent of provincial consumption; for light fuel oil the proportion was about 60 percent and for heavy fuel nearly 75 percent.

Imports of petroleum products decreased 20 percent from 1973 levels to about 12,000 barrels per day. Of total imports light fuel oil accounted for about 6 percent and heavy fuel oil about 25 percent. No imports of motor gasoline were reported.

Table 4

Sources of Three Significant and all Petroleum Products 1974
Expressed as Percentages of Consumption and Changes over 1973

	Motor Gasoline			Light Fuel Oil			Heavy Fuel Oil			All Products		
	Percent	Change over 1973	Consumption	Percent	Change over 1973	Consumption	Percent	Change over 1973	Consumption	Percent	Change over 1973	Consumption
Refinery Production	88.3	10.9		62.0	-6.0		74.5	21.5		83.7	10.0	
Transfers:												
Interprovincial												
In	11.0	-14.1		14.5	-22.8		28.5	-27.0		16.2	-19.4	
Out	0.4	-75.1		1.2	-39.2		0.7	120.0		1.7	-27.9	
Net	10.6	-5.7		13.3	-20.9		27.8	-28.3		14.5	-18.2	
Interproduct	-0.3	-113.0		21.6	21.9		6.9	92.4		-0-		
Inventory (net)	-0.8	-0-		1.0	-0-		1.6	-0-		-0.2	-0-	
Imports:	-0-	-100.0		0.7	-28.5		3.4	50.4		2.2	-21.4	
Less Exports	0.2	-98.7		1.0	-54.5		16.0	95.0		3.6	51.8	
Net Imports	-0.2	-0-		-0.3	-0-		-12.6	-0-		-1.4	-0-	

Consumption '000 bbls	75,840	38,410	32,274	197,018
Percent 1974/73	2.2%	0.7%	-1.6%	2.7%

Table 5

Ontario Net Sales of Petroleum Products 1974 (1)

	<u>Quantities in Thousand Barrels</u>	<u>Percent Total 1974/73</u>
Propane (2)	1,732	0.9 38.6
Butane & Butane Mixes	17	- 1600.0
Petro-chemical Feed Stock	8,003	4.3 5.7
Naptha Specialties	1,960	1.1 10.1
Aviation Gasoline	324	0.2 11.7
Motor Gasoline	75,769	40.6 2.3
Aviation Turbo Fuel	6,861	3.7 18.9
Kerosene, Stove Oil, Tractor Fuel	2,520	1.4 -4.2
Diesel Fuel Oil	15,644	8.4 11.5
Light Fuel Oil (Nos. 2 & 3)	38,337	20.5 0.6
Heavy Fuel Oil (Nos. 4, 5 & 6)	26,715	14.3 -2.3
Asphalt	5,100	2.7 -5.9
Coke	373	0.2 25.1
Lubricating Oil & Grease	2,648	1.4 0.7
Other Products	640	0.3 28.5
Total All Products	<u>186,643</u>	<u>100.0 2.7</u>

(1) Based on data from Statistics Canada Monthly Report No. 45-004

(2) Represents Ontario refinery production from crude oil only.

Exports of petroleum products increased 50 percent over 1973 levels to nearly 20,000 barrels per day. Motor gasoline accounted for 14 percent of total product exports, light fuel oil for 5 percent and heavy fuel oil for 75 percent.

Selling prices of petroleum products in Ontario generally increased principally reflecting higher delivered costs of domestic crude oil.

Refinery Capacity

Refinery capacity increased more than 20 percent to 530,000 bpd resulting in about 26 percent of Canadian refinery capacity being located in Ontario. During the year, BP Canada completed a 40,000 bpd addition to its Trafalgar plant. Sun Oil more than doubled the capacity of its Sarnia refinery to 80,000 bpd. Shell Canada increased its Corunna refinery capacity about 10 percent to 80,000 bpd. Texaco Canada added 2,000 bpd to bring its Port Credit plant capacity to 48,000 bpd. Gulf Oil Canada's construction of a 25,000 bpd addition to its Clarkson refinery is to be completed around mid-1975. Texaco Canada began construction of its 95,000 bpd refinery at Nanticoke with planned completion in 1977 or early 1978.

The largest refinery project in Ontario is the world-scale petrochemical plant being constructed near Sarnia by Petrosar Ltd. This plant, which is expected to be completed by 1977, will have an ultimate capacity to handle 175,000 bpd of crude oil. It will consume about 60,000 bpd in

process and petrochemical feedstocks and produce 115,000 bpd of petroleum fuels, including liquid petroleum gas, motor gasoline, home-heating oil and residual oil. Petrosar will also supply synthetic natural gas to Union Gas of Chatham commencing around 1977.

Table 6

ONTARIO REFINING CAPACITY 1974

Primary Distillation Capacity at Year End
in Thousands of Barrels per Calendar Day.

Shell:	Oakville	42.0
	Corunna	80.0
Gulf:	Clarkson	66.5
B.P.:	Trafalgar	78.0
Imperial:	Sarnia	130.0
Texaco:	Port Credit	48.0
Sun Oil:	Sarnia	<u>85.5</u>
Total Ontario - Thousands B/CD		530.0
- as percent of Total Canada		26
(Total Quebec - as percent of Total Canada		32)

NATURAL GAS IN ONTARIO

General

In 1974, consumption of natural gas in Ontario increased to 677 billion cubic feet about 11 percent more than in 1973. Natural gas supplied approximately 24 percent of Ontario's primary energy consumption and Ontario's natural gas sales represent about half the total sales in Canada. Supplies of natural gas from western Canada increased by 6 percent while both imports and exports declined from 1973 levels. Greater use was made of storage. The cost of natural gas supplies from western Canada increased resulting in higher costs for Ontario consumers.

Submissions to the National Energy Board hearings into the supply, deliverability and demand for natural gas which began during the year indicated that Canada's producible supplies would probably be insufficient to meet anticipated domestic demand and existing export commitments within the next few years and that new sources of gas would be needed by the 1980's.

It has been reported that exploration in the Arctic regions has met with some success in finding substantial gas reserves. The National Energy Board began hearings in 1975 relating to the construction of the required pipelines to bring these supplies to southern consuming markets. These hearings will examine the extent of these reserves, and the environmental and other complex factors of the projects.

Supplies

In 1974, receipts of gas from western Canada increased by 6 percent over 1973 levels; a lower increase than the 14 percent experienced in 1973. Imports from the U.S.A. which comprise about 1.8 percent of total natural gas supply dropped by 10 percent. Total exports of Canadian gas, which accounted for 1.9 percent of total disposition, decreased by about 1 percent. Movements through the Rainy River region, accounting for about 60 percent of total exports, decreased slightly. Movements into northeastern New York State, about 40 percent of total exports, incurred a small increase.

Company use for compression, transmission and distribution activities decreased by about 15 percent from 1973 levels. This use accounted for about 4 percent of supplies from western Canada.

Production from Ontario gas wells declined 20 percent from 1973 levels to 7.5 million cubic feet, which represents about 1 percent of total Ontario requirements. Lake Erie production accounted for about 70 percent of this production.

Storage

Movements of gas from and to storage reflected increased use of storage in meeting peak seasonal demands. Withdrawals rose by over 40 percent compared to 1973. Although deposits declined by around 7 percent from 1973 levels, at year end there was a net excess of deposits over withdrawals.

By the end of September, the closing of the summer gas injection period, available supplies on deposit of around 114 Million Mcf were up by 40 percent from the level of the previous year. Withdrawals in the fourth quarter of 1974, the first quarter of the 1974/1975 fall to spring withdrawal period, nearly doubled those in the fourth quarter of 1973 and were a major factor in the increased level of withdrawals in 1974.

The increased storage capability was achieved by further conversion of former Lambton county gas and oil reservoirs in southwestern Ontario. Of interest is the agreement between Union Gas and the Kingston Public Utilities Commission for storing 420,000 Mcf of gas annually over the next 6 years for the Kingston area. After summer injections, gas will be shipped to Kingston by TransCanada PipeLines in the peak winter demand months.

Sales

In 1974, natural gas sales to Ontario users increased by over 12 percent from 1973 levels, a larger increase than the 5 percent experienced in 1973 over 1972. It should be noted that over the period of the year the rate of increase moderated from a first quarter advance of 15 percent. Ontario sales continued their proportion of about half of total sales in Canada.

Sales to residential consumers were up by over 10 percent while the number of customers increased by 4 percent. Sales to commercial consumers increased by over 18 percent, while

the number of customers increased by 7 percent. Combined use by residential and commercial categories continued to represent about 40 percent of total sales.

In 1974, the number of industrial consumers declined slightly after a 17 percent increase in 1973 but industrial sales were up by over 10 percent from 1973 levels. Industrial sales accounted for 60 percent of total sales.

Other Developments

The rise in the western Canadian wellhead price for natural gas increased the cost to TransCanada PipeLines of western Canadian supplies to a 44.5 cents per Mcf average for the contract year commencing November 1st, 1974. This cost compares with about 22 cents per Mcf for the same 1973 period and around 16 cents per Mcf in 1972. There are indications of further increases in 1975. Ontario's major distributors were authorized to raise their rates charged to consumers by around 25 percent to offset the increased cost of gas.

A future supplementary source of gas in Ontario will result from the current construction near Sarnia of the Petrosar petrochemical complex using crude oil feedstock. Petrosar has agreed to supply synthetic natural gas (SNG), to Union Gas Limited.

Table 7

Ontario Natural Gas Balance 1974

		<u>Thousands Cubic Feet*</u>	<u>Percent of Total</u>	<u>Change over 1973</u>
<u>Supply</u>				
Ontario production		7,536,953	1.1	-20.9
Receipts from				
Western Canada	694,619,303		97.1	6.2
U.S.A.	<u>13,231,293</u>		1.8	-10.2
		707,850,596		
Propane Air		<u>8,819</u>	-0-	-66.5
Total Supply		715,396,368	100.0	5.5
<u>Disposition</u>				
Sales to consumers	650,641,918		91.0	12.3
Free Gas	28,009		-	5.0
Company Use	<u>25,984,544</u>		<u>3.6</u>	<u>-14.8</u>
Total Consumption		676,654,471	94.6	10.9
Gas to Storage (net)	7,372,378		1.0	-82.8
Gas to Province of Quebec (net)	2,211,314		0.3	64.0
Gas to Manitoba	18,418		-	100.0
Exports to U.S.A.	13,328,719		1.9	-0.9
Line Pack	5,190,579		0.7	-0-
Metering, Line Loss & other Unaccounted for	<u>10,620,489</u>		1.5	-0-
		<u>38,741,897</u>		
Total Disposition		715,396,368	100.0	5.5

* At 14.73 psia

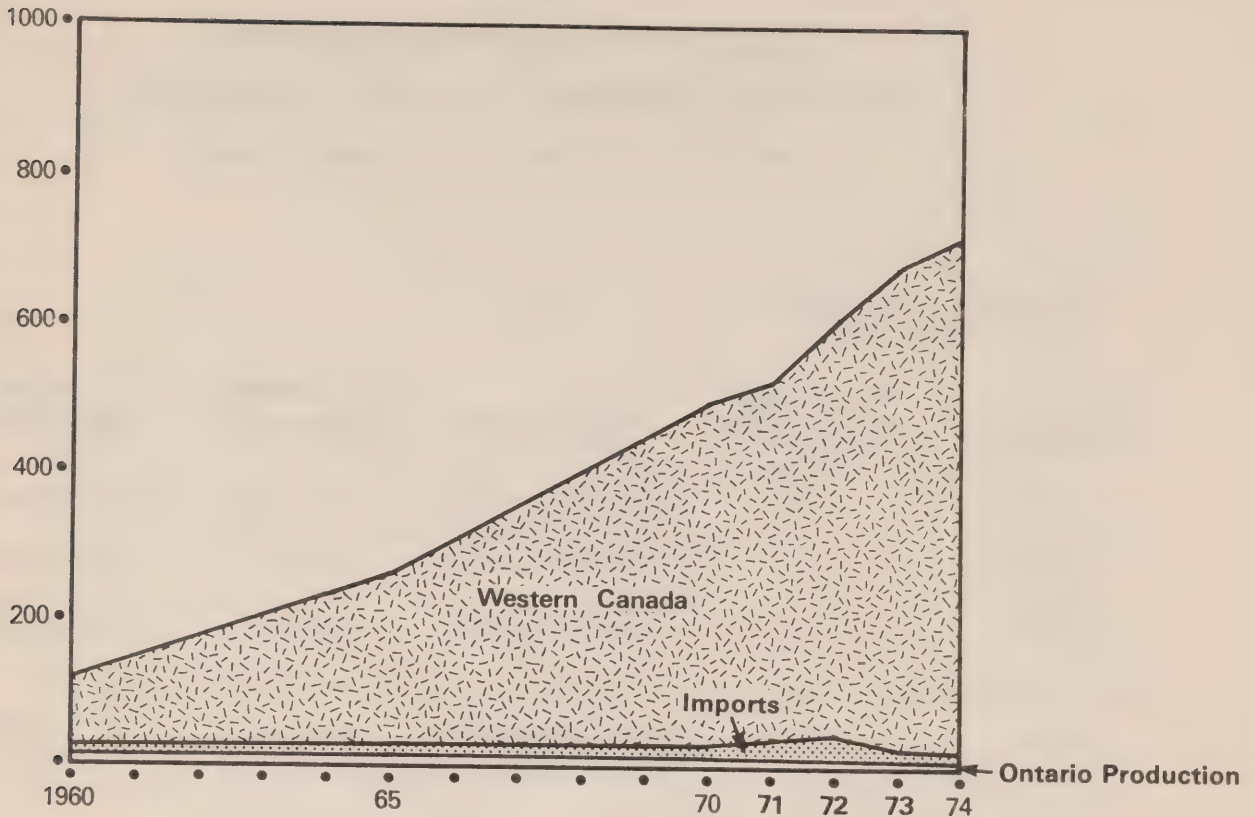
NATURAL GAS IN ONTARIO

Source: Ontario Natural Gas Industry

Figure 5

Millions
of MCF

SUPPLY



DISPOSITION

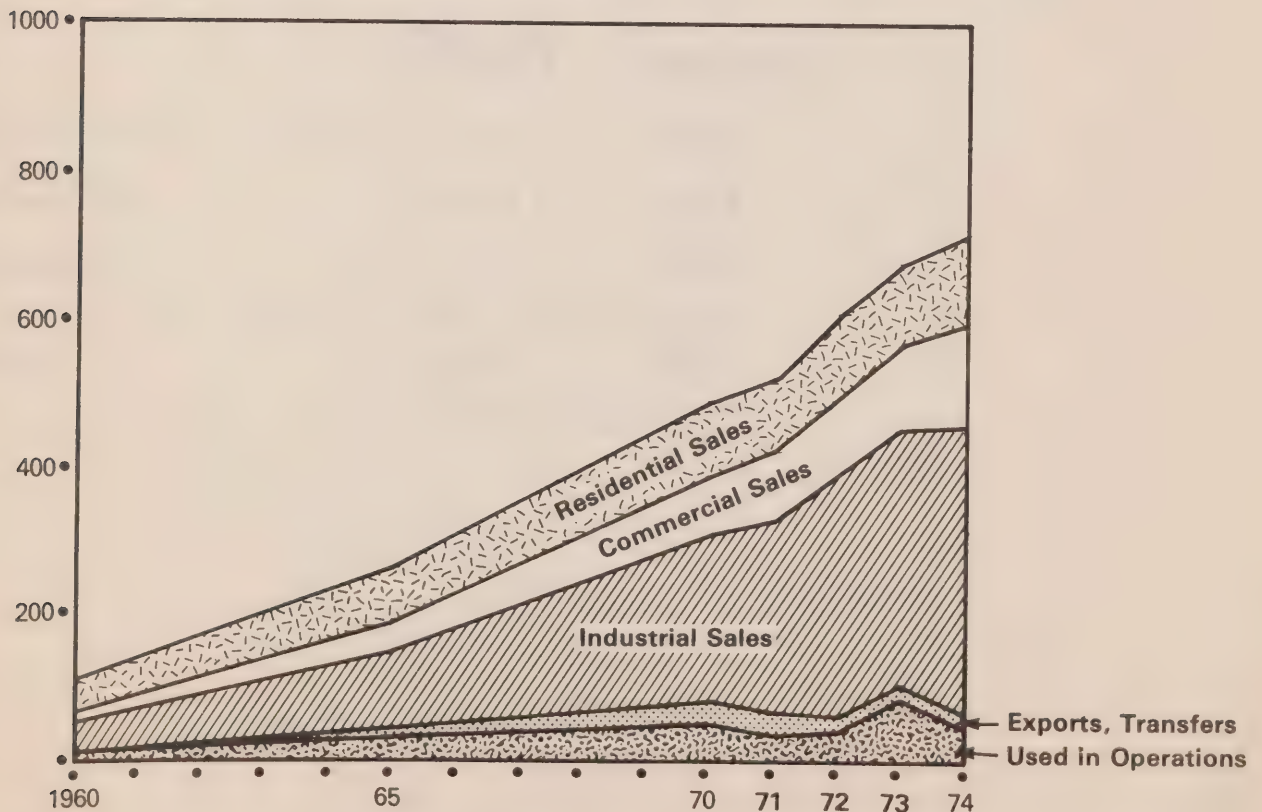


Table 8

Natural Gas Sales in Ontario 1974

Comparative Totals by Consumers Categories

Quantities in Thousands Cubic Feet

<u>Category of Consumer</u>	<u>Number of Consumers</u>	<u>Quantities</u>	<u>Percent Changes 1974 over 1973</u>	
			<u>Number of Consumers</u>	<u>Quantities</u>
Residential	879,551	124,338,182	4.0	11.1
Commercial	92,281	138,282,613	6.9	18.2
Industrial	11,184	388,021,123	-0.1	10.7
TOTALS	983,016	650,641,918	4.2	12.3

Percent Changes
1974 over 1969

	<u>Number of Consumers</u>	<u>Quantities</u>
Residential	23.2	28.6
Commercial	40.4	92.9
Industrial	38.7	110.0
TOTALS	24.8	85.0

PROPANE IN ONTARIO

Propane received from natural gas processing plants in western Canada increased by approximately 20 percent from 1973 levels and accounted for over half the total Ontario supply. Output from Ontario oil refineries increased by 9 percent and provided approximately 45 percent of total supply.

Distributor sales rose by 20 percent from 1973 levels while transfers to the petrochemical industry increased by 40 percent.

Underground storage for propane and other hydrocarbons was increased by further development of salt cavern reservoirs in the Sarnia area.

Table 9

Propane Receipts and Disposition in Ontario (1)

1974

In Barrels

	Volumes	<u>Percent</u>	
		Total	Change 1974/73
<u>SUPPLY</u>			
Refinery production	2,138,021	45.9	9.1
Interprovincial transfers IN	2,663,349	57.2	20.0
OUT	<u>76,383</u>		-28.6
Net transfers	2,586,996	55.6	22.6
Inventory changes	<u>-75,077</u>		
Net Canadian Supply	4,649,910	99.9	14.2
Imports	3,747	0.1	5.5
Less Exports	<u>—</u>		-100.0
Net Imports	<u>3,747</u>		
TOTAL SUPPLY	<u>4,653,657</u>	<u>100.0</u>	<u>18.4</u>
<u>DISPOSITION</u>			
Petrochemical and Industrial	1,077,152	23.1	42.1
Distributors (2)	<u>3,614,411</u>	<u>77.7</u>	<u>20.1</u>
Sub-Total	4,691,563	100.8	24.4
Plant and refinery use	123,887	2.7	690.0
Losses or gains	-4,220		
Adjustments	<u>-157,573</u>	<u>-3.5</u>	
TOTAL DISPOSITION	<u>4,653,657</u>	<u>100.0</u>	<u>18.4</u>

Note (1) Statistics Canada No. 57-002.

(2) Identifiable industrial sales are included.
Distributor sales may contain sales to industrial.

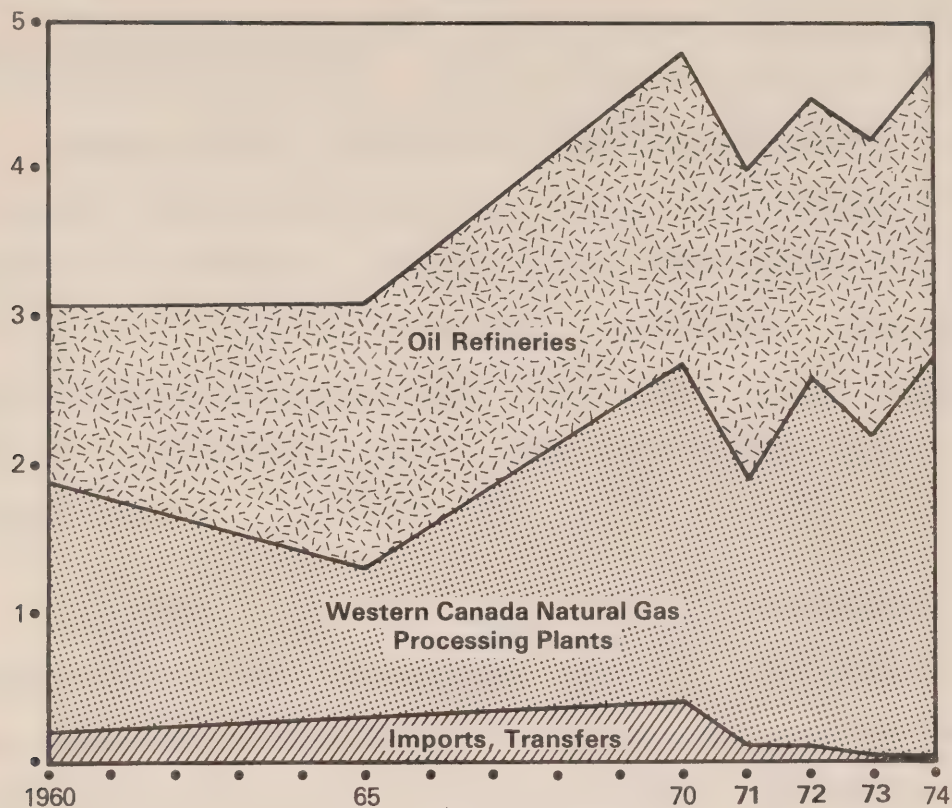
PROPANE IN ONTARIO

Source: Statistics Canada No. 57-002, 57-207 & 57-505

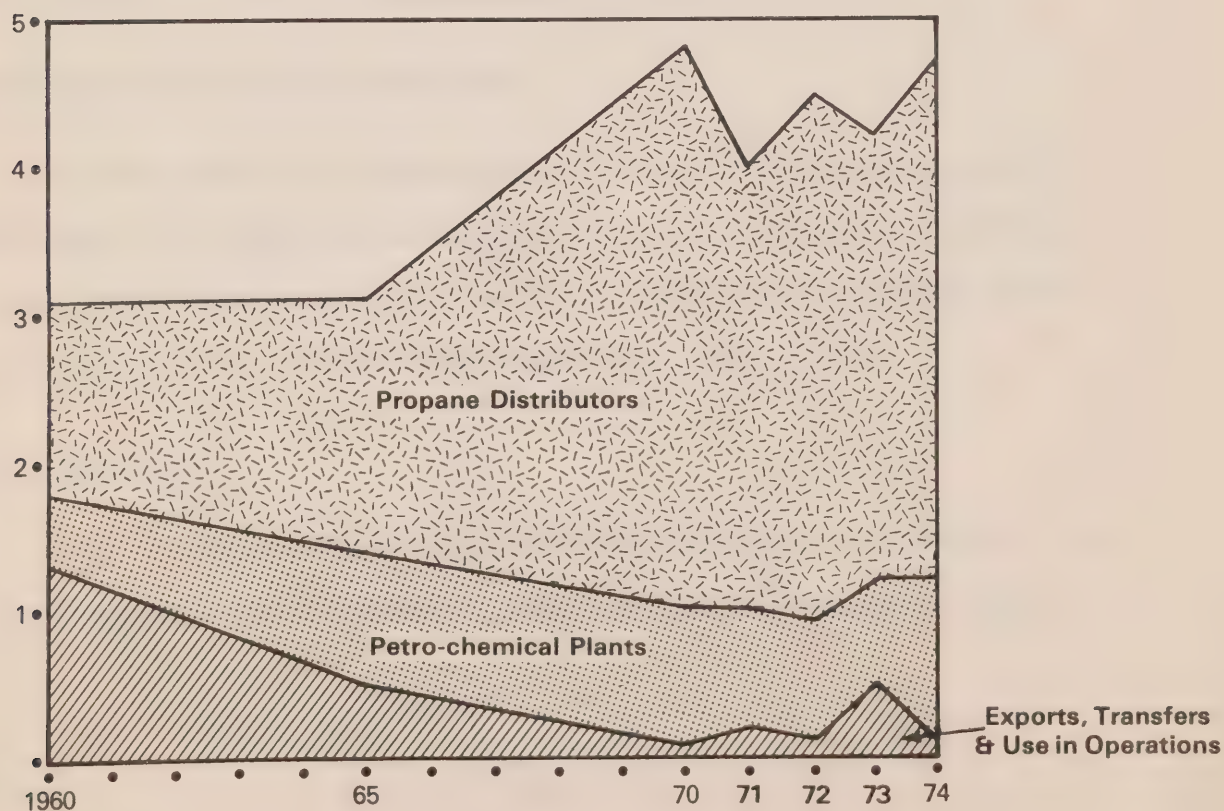
Figure 6

Millions
of Barrels

SUPPLY



DISPOSITION



PIPELINES IN ONTARIO

Natural Gas Pipelines

During 1974, TransCanada PipeLines completed the looping of their natural gas pipeline through northern Ontario from Winnipeg to Toronto. Completion of this second line added 156 miles of pipeline terminating at Jellico. TransCanada's construction programme also included 118 miles of loop between Toronto and Montreal and 19 miles of loopline on the Ottawa extension.

Consumers' Gas added approximately 200 miles to its distribution lines in southern Ontario. In November, Union Gas commenced construction of the largest diameter natural gas transmission line in eastern Canada, an 11-mile 42-inch pipeline from their Dawn Township compressor station north of Chatham to near Oil Springs in Lambton County.

Natural Gas Liquids Pipelines

Dome Petroleum completed in early 1974 approximately 80 miles of natural gas liquids pipeline to carry products from their Sarnia processing plant to Windsor storage pools (for local distribution and export to the U.S.A.).

Oil Pipelines

Sun-Canadian PipeLine reported additions of roughly 120 miles as the final phase of looping its oil products line

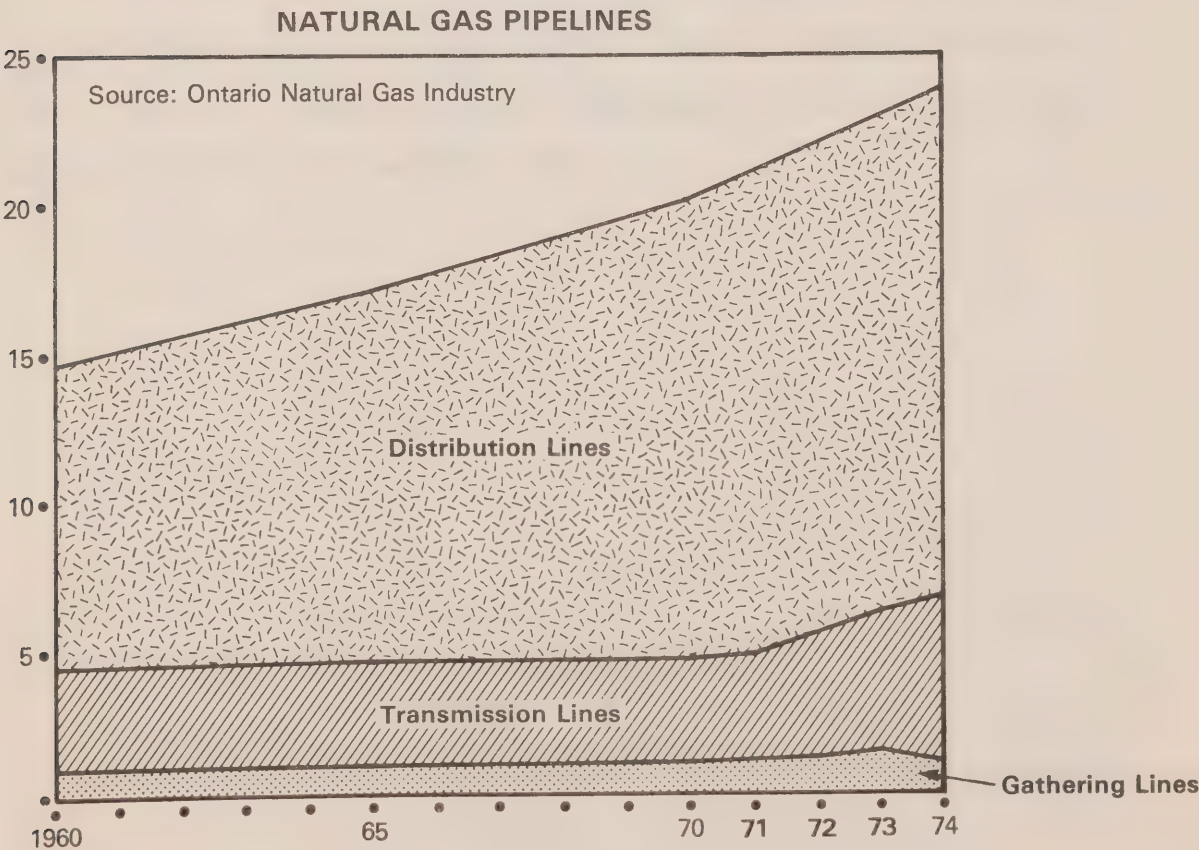
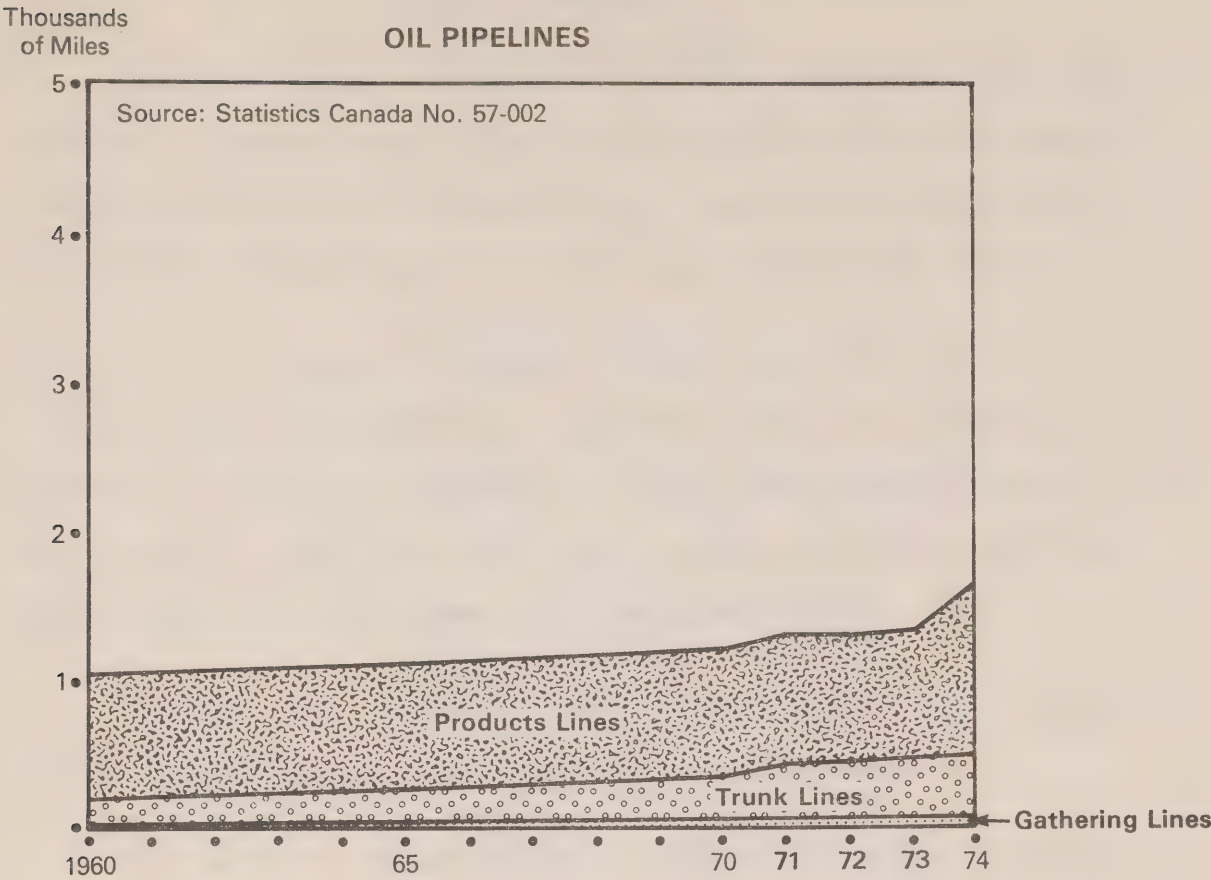
system between Sarnia refineries and the Toronto area. Construction began in 1975 on Interprovincial PipeLines' project to build a 520-mile line to carry western Canadian oil from Sarnia to Montreal.

TABLE 10
PIPELINE MILEAGE IN ONTARIO - 1974

	<u>Miles</u>	<u>Percent</u> <u>1974/73</u>	<u>Canada</u>
<u>Natural Gas Pipelines</u>			
Gathering	1,024	-7.7	12.0
Transmission	5,875	7.6	23.3
Distribution	<u>16,771</u>	<u>1.6</u>	<u>43.0</u>
TOTAL	23,670	2.8	32.5
<u>Oil Pipelines</u>			
Gathering	18	0	0
Crude Oil Trunk Lines	443	0	4.8
Oil Product Lines	<u>1,065</u>	<u>25.3</u>	<u>46.0</u>
TOTAL	1,526	18.0	7.9
TOTAL ALL PIPELINES	25,196	3.6	27.4

ONTARIO PIPELINE MILEAGE

Figure 7



COAL IN ONTARIO

Ontario's coal consumption in 1974 decreased from 1973 levels. Somewhat over half of total consumption was used in thermal generation of electricity. Most of the remainder was used in steel foundries and other industrial uses.

Most of Ontario's supply of coal came from the United States; only approximately 2 percent came from Canadian sources. Increased shipments of coal from western Canada were used to test this coal for thermal generation and for other industrial purposes such as steel-making.

At year end, stocks of coal on hand were some 9 percent lower than stocks at the beginning of the year.

The price of imported coal increased sharply in 1974.

In the interests of diversifying supplies, Ontario Hydro is developing plans for the future use of western Canadian coal. Current studies include examination of the necessary transportation and handling facilities.

ONTARIO COAL BALANCE 1974

				1 9 7 4	
	Anthra- cite	(1) Bitumi- nous	Lignite	Total	Percent Change from 1973
<u>SUPPLY</u>					
Domestic: Western Provinces	-	231	45	276	520.0
Nova Scotia	-	1	-	1	-75.0
Total	-	232	45	277	480.0
Imports: U.S.A.	77	12,637	-	12,714	-19.3
Total Coal Supply	77	12,869	45	12,991	-17.8
<u>DEMAND</u>					
Industrial: Consumption ⁽²⁾	66	7,964	57	8,087	-0.8
Net to Inventory ⁽³⁾	-5	-766	-14	-785	-0-
Total Demand	61	7,198	43	7,302	-14.0
Other ⁽⁴⁾ Total Demand	16	5,671	2	5,689	-22.3
Total Coal Demand	77	12,869	45	12,991	-17.8

- (1) Includes sub-bituminous in small quantities.
- (2) Industrial Consumption excludes firms using less than 1,000 tons per annum and coal "charged to ovens" to make coke (includes electric utilities).
- (3) Excludes stocks held by firms using less than 1,000 tons per year and stocks held by coke producers.
- (4) Retail to residential, commercial and industrial users including coke production, railway, ship bunker, government and institutional consumption, which is calculated by the difference between the total coal supply and the sum of (2) and (3).

- 35 -

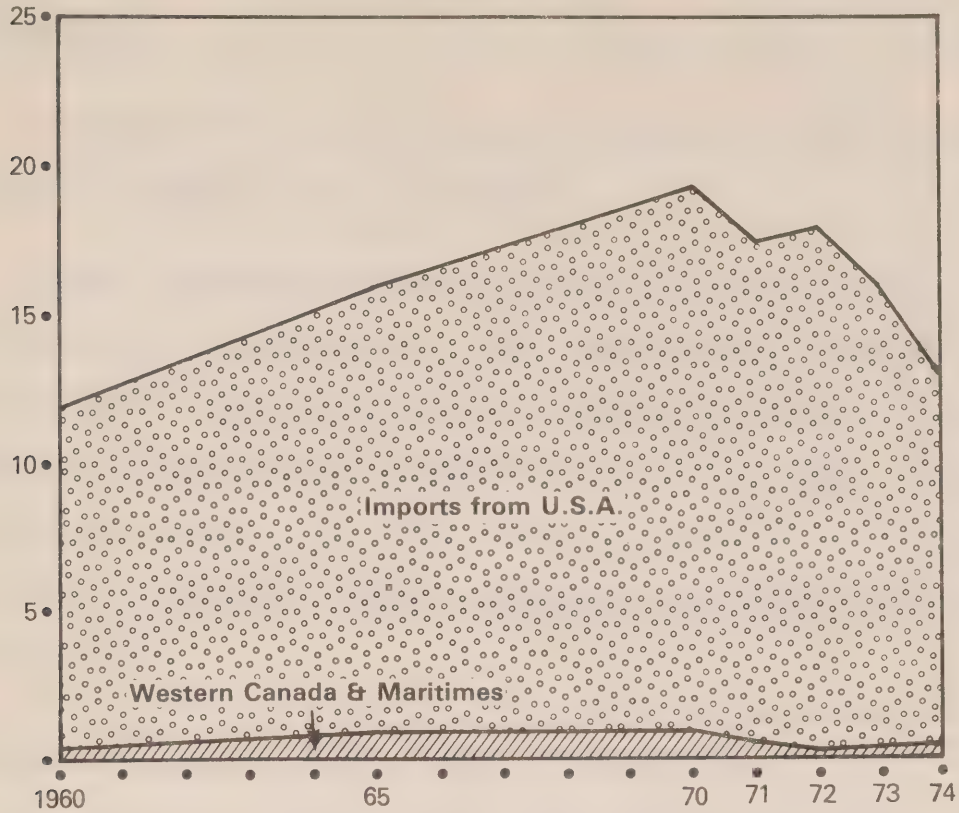
COAL IN ONTARIO

Source: Statistics Canada No. 26-206, 45-002, 57-505 & 57-207

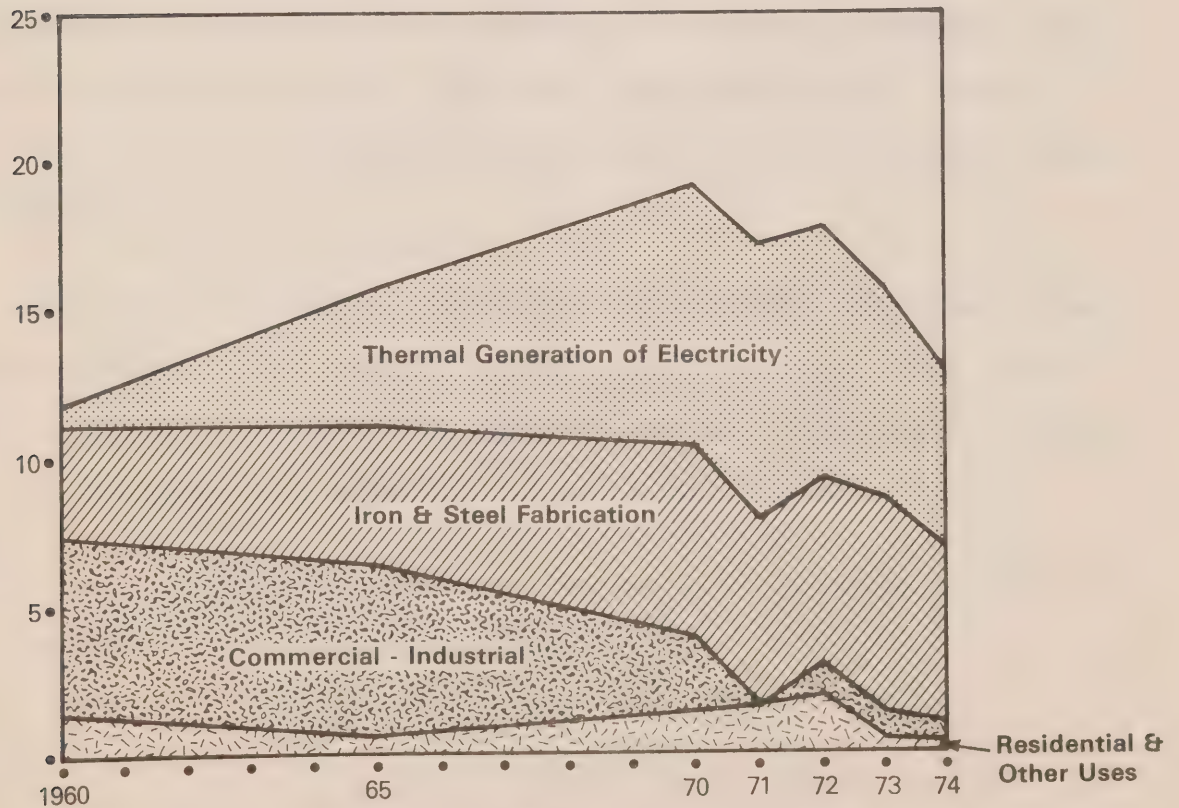
Figure 8

Millions
of Short Tons

SUPPLY



DISPOSITION



ELECTRICITY IN ONTARIO

Electricity

Consumption of electricity in Ontario in 1974 increased by nearly 6 percent from 1973 levels.

Power from hydraulic generation increased by over 2 percent and provided 47 percent of total electricity. Thermal generation both fossil fired and nuclear, provided 46 percent. (Nuclear generation supplied 16 percent or 14 billion kWh.) Purchases from other sources including imports increased to 14 billion kWh. Exports and sales to other provinces were relatively unchanged at 8 billion kWh.

Ontario Hydro Generating Plant Developments¹

On July 31, 1974, the new Nanticoke coal-fired generating plant had a fire causing a shutdown for repair and inspection. With the colder weather, the three undamaged units were returned to service. Work has continued on the second set of four units. Construction of the 8 x 500 MW plant should be complete in 1977.

By year end, initial shipments of residual oil from Quebec were arriving at the new oil-fired Lennox station. The first unit is expected to start up in 1975 and all four units of this 4 x 500 MW plant are expected to be in service by 1977.

1. - See footnote at end of section.

Site construction work began and orders for major equipment were placed for a 4 x 500 MW oil-fired generating station at Wesleyville, the first unit of which is planned for service in 1979.¹

During the year, Unit 3 of the Pickering nuclear station was shut down for 5 months because of heavy water leaks. Despite this, Pickering's output of 13.5 billion kWh exceeded that of any other nuclear plant in the world in 1974 as a result of the high capacity factor of 95 percent for the other three units. Initial construction began on the 4 x 500 MW Pickering B nuclear station; the first unit is expected to be in service by 1980.¹

Commissioning of major components of the 4 x 750 MW Bruce A Generating Station continued. The first unit is planned for service in 1976 and all four units are scheduled to be in service by 1979.

The only hydraulic plant under construction was the 2 x 39 MW Arnprior plant, planned to be in service by 1976.

Future plans include a 2 x 150 MW addition to the Thunder Bay coal-fired generating station,¹ additional stations for North Western Ontario,¹ a plant on the North Channel of Lake Huron,¹ a second 4 x 750 MW nuclear station at Bruce¹ and a 4 x 850 MW plant at a new site near Bowmanville.¹

Heavy Water

The Bruce heavy water plant produced its first reactor

¹See footnote at end of section.

grade heavy water during 1973. In 1974, over 700 tons were produced. This represents more than 80 percent of the plant's 800 tons per year capacity.

Construction of a second 800 tons per year heavy water plant at Bruce was started during the year. There are plans for two further plants.¹

During the year the Canadian supply position for heavy water improved from the tight supply experienced in late 1973. Under the terms of the heavy water pool agreement, AECL purchased 650 tons from Bruce, 300 tons from the Port Hawkesbury plant in Nova Scotia and smaller volumes from Sweden and Russia. Future capacity expansion plans include the rebuilding of the 400-ton per year plant at Glace Bay planned to be in service in 1975² and a new 800 ton per year plant at La Prade, Quebec, on which construction began in November.

Uranium

Uranium production in Ontario increased by 5 percent to 8 million pounds. This accounted for about 85 percent of Canada's total reported production.

To protect the large capital investment in nuclear generation plants, the Federal Government introduced export guidelines in September, 1974. Their purpose is to ensure that adequate uranium reserves and production capacity will exist to meet future Canadian requirements. The guidelines require that

²This plant came into service in 1976.

sufficient inground reserves be set aside to fuel each Canadian nuclear plant, in operation and planned for in a 10-year rolling period, for a period of 30 years. In addition, it requires that utilities have under contract 15 year forward supplies.

Footnote

In February 1976, Ontario Hydro revised the schedule for its capital construction program. The revisions to the service dates are summarized below.

Postponed one year	- Pickering B, Bruce B, extension to Thunder Bay, Atikokan (coal-fired station for north-western Ontario), a third new power station for northwestern Ontario
Postponed two years	- Wesleyville, Darlington (near Bowmanville),
Delayed for two years	- north channel of Lake Huron Bruce Heavy Water Plant D
Cancelled	- Bruce Heavy Water Plant C

Table 12
Electric Energy Balance 1974

		<u>Ontario (1)</u>		<u>Ont. Hydro (2)</u>
		Billions	Percent	Billions
		(10 ⁹) kWh	Change over 1973	(10 ⁹) kWh
<u>Supply</u>				
Utilities Generation	- Hydro	39.8	2.3	37.7
	- Thermal			
	Conventional, etc.	25.0	10.1	25.0
	Nuclear	13.9	-2.1	13.9
	- Total	78.7	3.8	76.6
Industry Generation	- Hydro	1.6	-5.9	-
	- Thermal	2.1	10.5	-
	- Total	3.7	2.8	-
Total Generation	- Hydro	41.4	2.0	37.7
	- Thermal			
	Conventional, etc.	27.1	10.2	25.0
	Nuclear	13.9	-2.1	13.9
	- Total	82.4	3.8	76.6
Net Purchases (3)		6.2	44.2	6.2
Total Supply		88.6	5.9	82.8
<u>Disposition</u>				
Sales	- Commercial-Industrial (4)	45.9	4.1	
	- Domestic & Farm	18.7	6.3	
	- Street Lighting	0.5	Ø	
	- Total Sales	65.1	4.7	
Own Plant Use		8.1	5.2	
Unallocated and Distribution by Non-respondents		15.4	11.6	
Total Disposition		88.6	5.9	

(1) Statistics Canada No. 57-001

(2) Ontario Hydro

(3) Other Provinces and U.S.A. only; excludes transfers within Ontario and purchases from AECL Douglas Point Nuclear Generating Station which is included in "Thermal".

(4) Commercial and industrial use are combined above due to increasing difficulty by utilities of reporting separately.

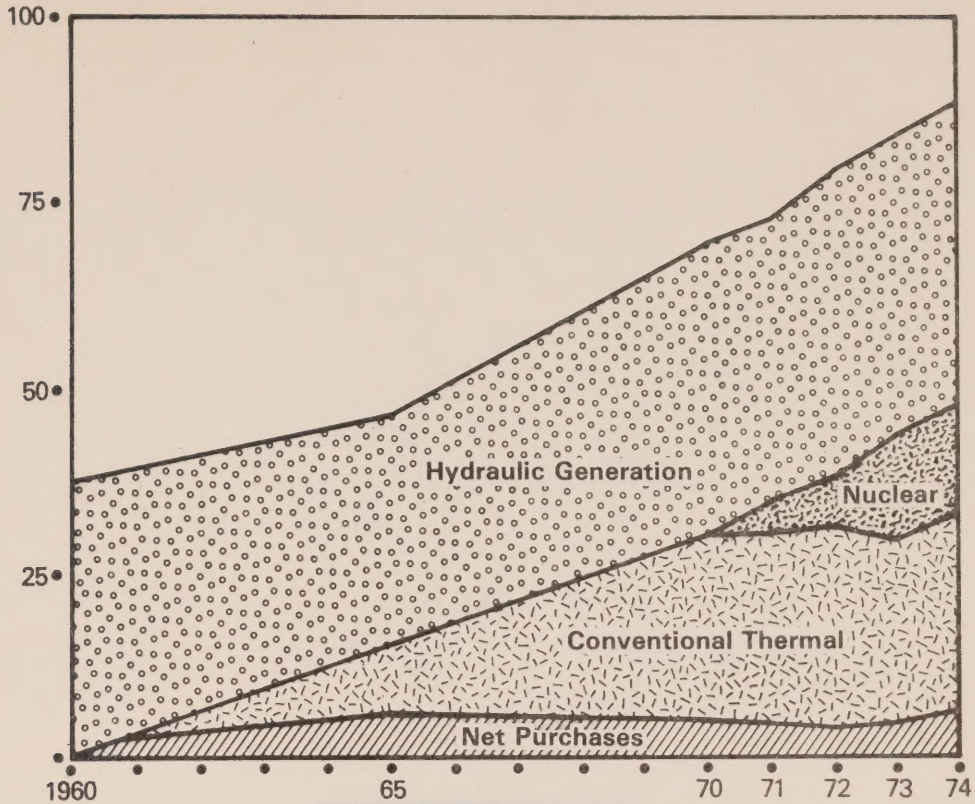
ELECTRICITY IN ONTARIO

Source: Statistics Canada No. 57-001 & 57-202

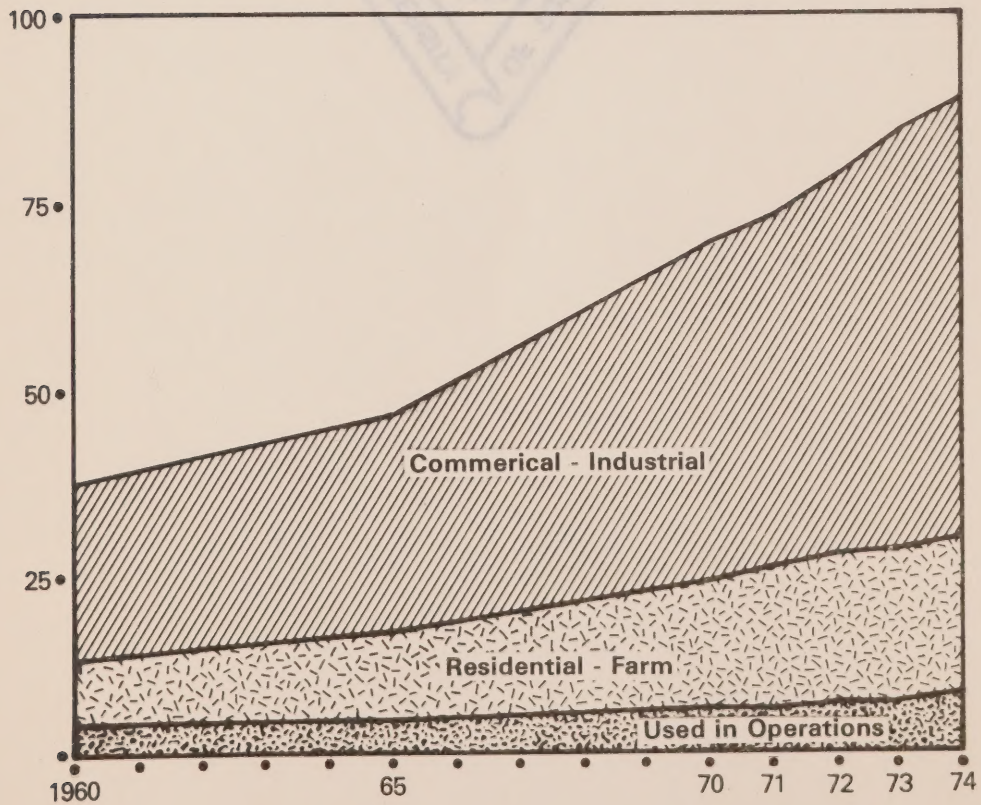
Figure 9

Billions
of KWH

SUPPLY



DISPOSITION



ELECTRICITY IN ONTARIO

Source: Statistics Canada, No. 29-001, p. 23-25

SUPPLY

Billion
kWh

